Supersedes Suppl. Spec. dated 9/9/98, 12/8/98, 8/10/99, 3/3/00, 1/4/01, 8/2/01 & 06/24/02

S U P P L E M E N T A L S P E C I F I C A T I O N

AMENDMENT TO SECTION 401 -- PLANT MIX PAVEMENTS - GENERAL

Amend 2.2 to read:

2.2 Bituminous materials used for asphalt cement binder shall meet the properties specified in AASHTO M 320. The grade of asphalt cement binder to be used will be specified in a Special Provision contained in the Proposal.

Delete 2.2.2 to read:

Amend the Sieve Size and Percentage By Weight Passing - Combined Aggregate in Table 2 -- Composition of Mixtures - Master Ranges as shown on the attached Table 2.

Delete Table 2E

Amend 2.5 to read:

2.5 Bridge pavement base course shall be Type F Wearing Course.

Delete 2.5.1

Delete 2.5.2

Amend 2.6 to read:

2.6 Non-modified asphalt cement shall contain silicone additive with the concentration being 3 parts per million plus or minus 1 part per million of silicone to asphalt cement, unless otherwise directed. Silicone additive shall be in liquid form and have a viscosity of 1 Pa•s (1,000 centipoises) at 25 ºC (77 ºF). Asphalt cement containing silicone shall meet the requirements of 401.2.2.

Amend 2.7(b) to read:

(b) If the source of RAP is unknown, but is of acceptable quality as described above, it will be allowed to a maximum of 15% of the total batch weight. No more than two design percentages will be considered for any mix design containing rap.. RAP materials from unknown sources may be rejected if deemed unsuitable for any reason or require an increase or decrease in the mix asphalt content. The Contractor shall submit for approval to the Bureau of Materials and Research at least 30 calendar days prior to the start of paving the following:

1. The designated use of the RAP and approximate proportions.
2. Representative samples and gradation and asphalt cement content test results of the RAP to be incorporated into the Recycled Mixture. One sample shall be taken from each 900 metric tons (1,000 tons) or less of the stockpiled material, as the stockpiles are being built.

Add under 3.1.3.3, Appurtenances:

(d) Ovens used to heat asphalt shall be located under the exhaust hood or vented to the outside to adequately vent fumes.

Amend 3.1.3.4 (a), (c), (d), (f) and (v) to read:

(a) Electronic balance with tray, at least 9000 gram (300 oz) net capacity, sensitive to 0.1 gram (0.003 oz).

(c) Set of U.S. Standard brass sieves, each sieve being 300 mm (12 in.) in diameter and 37.5 mm (1-1/2 in.) high. The set shall consist of one each of the following sizes: 37.5 mm, 31.5 mm, 25.0 mm, 19.0 mm, 12.5 mm, 9.5 mm, 4.75 mm, 2.36 mm, 1.18 mm, .600 mm, .300 mm, .150 mm, .075 mm, (1-1/2 in., 1-1/4 in., 1 in., 3/4 in., 1/2 in., 3/8 in., No. 4, No. 8, No. 16, No. 30, No. 50, No. 100, No. 200), with pan and cover.

(d) Motor driven shaker for 300 mm (12 in.) diameter sieves. Shaker shall meet the following requirements: Rotating turntable, tilt to 45 degree angle and have hammers to tap each sieve during operation.

(f) Motor driven centrifuge extractor, 3000 gram (100 oz) capacity with variable speed up to 3600 rpm, with filter rings and non-toxic solvent approved by the Bureau of Materials and Research.

(v) Water, hot and cold, and water suitable for drinking. (Fountain style will be acceptable).

Add to 3.1.3.4:

(x) Drying oven, minimum of 0.10 m^3 (3.5 ft^3).

(y) All ovens other than microwaves shall be vented to the outside.

Add after the first sentence of 3.1.3.5:

Testing equipment shall be calibrated by the Contractor in accordance with 106.03.

Amend 3.1.6.1 to read:

3.1.6.1 Feeders shall provide an accurate and positive means for uniform and continuous feeding of coarse aggregate to the dryer. Fine aggregate material shall be delivered by belt driven feeders for uniform control of material. All feeders shall provide for adjustment of the cold feed and shall be capable of being secured in any position.

Amend 3.1.7.6 to read:

3.1.7.6 Provisions shall be made for introducing the moisture content of the total cold feed into the belt weighing system and correcting the wet aggregate weight to dry aggregate weight. The system shall be capable of adjusting the flow of bituminous material to compensate for any variation in the dry weight of the aggregate flow. It shall be the responsibility of the Contractor to monitor and determine accurate moisture contents of the aggregate and RAP stockpiles used for production of hot mixed asphalt. The actual moisture content of the aggregate and RAP stockpiles shall be used for mix production. The moisture content shall be adjusted by the Contractor as variations in the stockpile moisture content occur.

Amend 3.4.5 to read:

3.4.5 Each weight slip will show a consecutive load number and shall include an accumulative total of material delivered for each day.

Add to 3.5.1:

3.5.1.3 When performing paving operations at night, in addition to the requirements of 3.1.2.5, the Contractor shall provide sufficient lighting at the work site to ensure the same degree of accuracy in workmanship and conditions regarding safety as would be obtained in daylight.

Amend 3.6.1 to read:

3.6.1 Immediately after the bituminous mixture has been spread, struck off, and surface irregularities adjusted, it shall be thoroughly and uniformly compacted by rolling. The initial rolling shall be done with a static or vibratory steel-drum roller. Intermediate rolling shall be done by a pneumatic-tired roller. Final rolling shall be done with a static steel-drum roller or a roller of the steel-drum three-axle type, locked. Rollers must be in good mechanical condition, free from excessive backlash, faulty steering mechanism, or worn parts. The empty weight and the ballasted weight shall be properly marked on each roller. The minimum weight of static steel-drum rollers shall be 7.3 metric tons (8 tons). When a vibratory roller is being used, the vibration shall stop automatically when the roller is stopped or reversing direction of travel.

Amend 3.6.8 to read:

3.6.8 Unless the Engineer determines that for the weight and placement conditions a lesser number will be satisfactory to obtain the desired pavement densities, the following is the list of required compaction equipment. The output of each paver placing base course or wearing course (Table 2) materials shall be compacted by the use of one each of the following complement of rollers as a minimum: a static or vibratory steel-drum roller, a pneumatic-tired roller and followed in either case by a static steel-drum roller or three-axle steel-drum roller. If the required density is not being obtained with the rollers supplied, the use of additional rollers of the

specified type may be ordered. Paving widths in excess of 5 m (16 ft) will require additional rollers as ordered.

Amend 3.7.3 to read:

3.7.3 Placing of the course shall be as continuous as possible while complying with Contract Traffic Control Plans. Transverse joints will be allowed at the end of each work shift or as required to provide properly bonded longitudinal joints.

Add to 3.7.3:

3.7.3.2 Unless otherwise precluded by weather conditions, longitudinal joints shall not remain open to traffic longer than 30 hours.

Amend 3.7.5 to read:

3.7.5 An approved bituminous material shall be applied to all joint contact surfaces unless a properly bonded joint is provided as specified in 3.7.6.3.

Add to Method of Measurement:

4.3 Hot bituminous bridge pavement, base course of the depth and additional materials specified will not be measured, but shall be the metric ton (ton) final pay quantity in accordance with 109.11 for compacted material within the limits shown on the plans.

Add to Basis of Payment:

5.4 Plant or project lighting, or overtime required due to night operations will be subsidiary to the paving items.

5.5 Asphalt cement additives will be subsidiary to the paving items.

Section 702 of the Standard Specifications should also be modified as follows.

Delete Table 1 and Table 1E on page 538.

Table 2 - Composition of Mixtures - Master Ranges [1]

Sieve Size		Base Courses [2]									Wearing Courses								
		Type A:[4] 31.5 mm (1-1/4 in)			Type B: [4] 19 mm (3/4 in)			Type C: [4] 12.5 mm (1/2 in)			Type D: [4] 19 mm (3/4 in) Single Course			Type E: [4] 12.5 mm (1/2 in)			Type F: [4] 9.5 mm (3/8 in)		
		Percentage by Weight Passing - Combined Aggregate																	
		Min	Desired	Max	Min	Desired	Max	Min	Desired	Max	Min	Desired	Max	Min	Desired	Max	Min	Desired	Max
31.5 mm	(1-1/4 in)	95	100	100															
25.0 mm	(1 in)	75	85	95															
19.0 mm	(3/4 in)	62	72	84	95	100	100				95	100	100						
12.5 mm	(1/2 in)	50	60	70	70	81	92	95	100	100	82	91	100	95	100	100			
9.5 mm	(3/8 in)	42	50	60	60	71	80	65	75	85	68	79	90	85	90	95	95	100	100
4.75 mm	(No. 4)	28	36	45	42	50	57	38	44	50	50	65	79	60	66	75	64	71	80
2.36 mm	(No. 8)	19	24	30	30	34	41	30	34	39	38	53	67	40	48	52	46	53	59
1.18 mm	(No. 16)	13	17	21	20	24	29	21	25	29	29	41	58	29	34	38	31	37	42
0.600 mm	(No. 30)	7	12	15	12	16	20	13	16	20	25	32	45	20	24	28	20	25	30
0.300 mm	(No. 50)	3	7	11	6	10	14	6	10	14	14	24	35	10	15	19	12	17	22
0.150 mm	(No. 100)	1	4	6	2	5	8	2	5	8	6	12	20	4	7	10	5	9	13
0.075 mm	(No. 200)	0	2	4	0	3	4	0	3	4	3	5	8	2	3	6	2	4	6
Asphalt Cement: % of Mix [3]		3.8	4.3	4.8	4.8	5.25	6.0	5.0	5.4	5.8	5.5	6.0	6.5	6.0	6.4	7.0	6.25	6.5	7.0

(2) Alternate aggregate sizes are included to ensure that the coarse aggregate shall not be larger than one-half the thickness of the layer being placed.

(3) The asphalt content for the above mixture is based on the use of aggregate with a specific gravity of 2.65 to 2.70. The asphalt content will be adjusted when aggregate with a higher specific gravity is used.

(4) Reclaimed asphalt pavement is permitted.